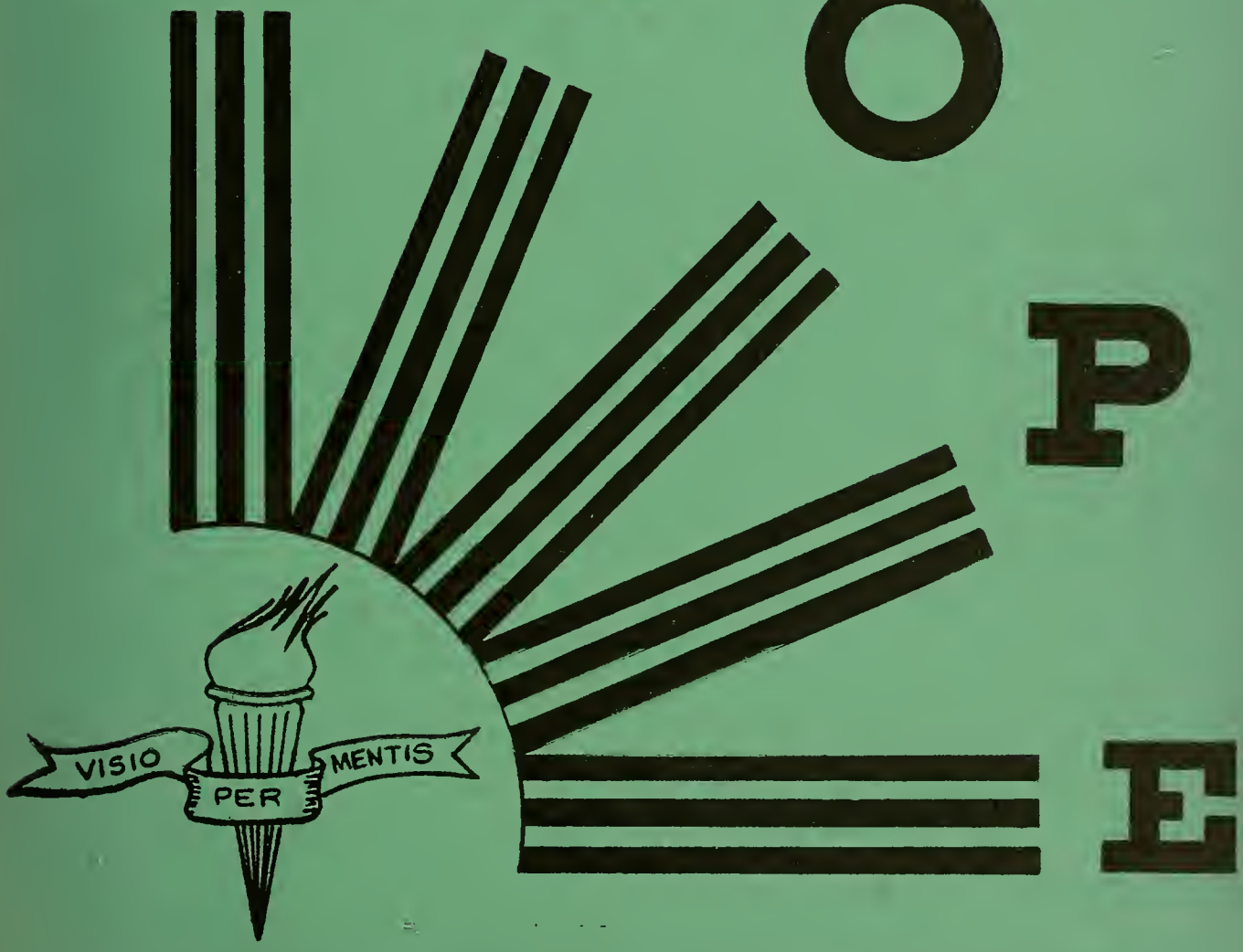
THE SCOPE

MARCH, 1952



PUBLISHED BY THE STUDENTS OF THE MASSACHUSETTS COLLEGE OF OPTOMETRY

THE SCOPE

VOLUME XXIII NUMBER 2

MARCH, 1952

FEATURES

More About Fees ..... page 2
Color Filters in Ophthalmoscopy—Dr. Asarkof ..... page 3
Iritis—Dr. Bruce ..... page 4
Ocular Symptomatology—Dr. Green ..... page 5
Contact Lenses—Dr. Beacher ..... page 6
Visual Progress ..... page 7
Want to Practice Optometry? ..... page 7
Junior Jiblets ..... page 8
From the Editor ..... page 9
Some Distortions of Space—Dr. Madigan ..... page 10
Freshman Review ..... page 11
Senior Column ..... page 12
Streak Retinoscopy ..... page 13
O. E. P. ..... page 14
Silhouettes ..... page 15
Refractive Error to Speed of Perception of Objects and Words—Dr. Eames ..... page 16

MORE ABOUT FEES

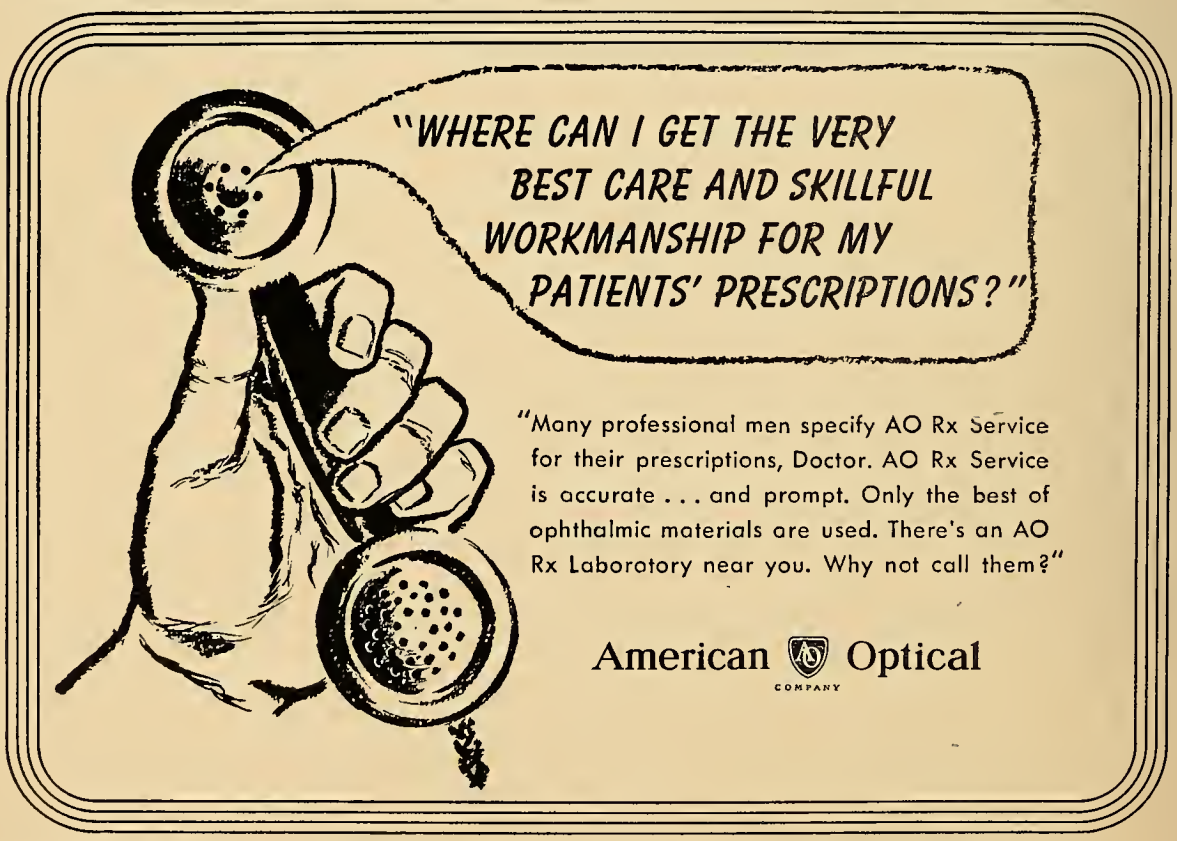
(reprinted from the Journal of the New Jersey Optometric Association—New Vol. VI. No. 2, February, 1952)

All taxes went up November 1st. If you, as an optometrist, did not raise your fees you will have less "take home pay" for your family. Ralph Barstow, nationally known optometric economist, states that since November 1st, everything points to considerable more inflation over the next 12 months so that the optometrist's purchasing power of his dollar will continue to decrease. He states, if your present fees have not been increased twice to what your fees were in 1939, you have not increased your charge one cent. If you use the "unit fee system," and said to your patient, "The fee for my services and glasses which are supplied at laboratory cost" were $18.00 in 1939, then today your total charge should be $36.00. Please remember the hospitals have increased their charges 128% since 1939. You will find that most patients will accept your increased professional fees without comment. The person who scares you most is yourself ! ! ! So many optometrists frighten themselves out of their wits (literally) when they contemplate asking a fee that is in keeping with the inflated dollar. They are still trying to "sell" eyeglasses on a 1939 basis instead of rendering professional services on a fee basis. Remember that your professional fees must keep pace with increasing costs and lowered dollar values. No one else is reducing charges. They are all going up. We again urge all optometrists to get themselves on a fee basis and supply glasses at the laboratory cost. Above all — explain carefully to every patient in your refracting room chair that they are paying you for professional service — that glasses when needed are supplied at laboratory cost.

A STATEMENT OF THE OFFICIAL POLICY OF THE AMERICAN OPTOMETRIC ASSOCIATION RELATIVE TO OPTICIANRY

(reprinted from the Journal of the New Jersey Optometric Association—New Vol. VI. No. 2, February, 1952)

Since it has been the declared policy of optometry not to fill prescriptions originating with any other practitioner, optometry has no desire to interfere with opticianry in carrying out this activity. Optometry appreciates that many ophthalmologists have their prescriptions filled by opticians and optometry has no desire in any way to modify, impair or interfere with that relationship.


"WHERE CAN I GET THE VERY BEST CARE AND SKILLFUL WORKMANSHIP FOR MY PATIENTS' PRESCRIPTIONS?"
"Many professional men specify AO Rx Service for their prescriptions, Doctor. AO Rx Service is accurate . . . and prompt. Only the best of ophthalmic materials are used. There's an AO Rx Laboratory near you. Why not call them?"
American Optical
COMPANY

Color Filters In Ophthalmoscopy

*John E. Asarkof**

Reprinted from the New England Optometric Journal
Vol. 24, No. 6, Feb., 1949

Introduction

The use and value of the electric ophthalmoscope are well recognized in the practice of optometry. However, the value of color filters in ophthalmoscopy is not as well known and they appear not to be utilized to the extent that they might. One reason for this is undoubtedly the fact that the average electric ophthalmoscope does not have an intense enough source of illumination to make fundus details visible when a filter is placed in front of the light source.

History

As early as 1898, Neuschuler employed colored glass filters in examination of the fundus.

Mayo in 1903, used the mercury vapor arc, the light of which is confined to the middle and lower spectral region.

Helmbold in 1910, experimented with the light of the prismatic spectrum.

Gimestous in 1911, employed red and green light to delineate blood vessels and differentiate hemorrhages from pigmentary changes.

Vogt in 1913, in his researches to demonstrate the yellow color of the macula demonstrated the true value of colored filters in the study of the ocular fundus.

Application

The use of restricted spectral light in the ophthalmoscope confers two advantages: (1) it eliminates chromatic aberration so far as the light employed approaches monochromatism; (2) various structures are defined with greater clarity and distinctiveness through the use of different bands of the spectrum.

The retina is practically transparent to white light and is therefore almost invisible. This applies especially to the macular region where the retina is the thinnest. The shorter waves of the spectrum, however, do not possess the penetrating power of the longer red ones and consequently instead of passing through the retina to the pigment epithelium and the choriod, a large proportion of them are reflected at the surface of the retina. In this way, when the short waves are used alone, instead of becoming transparent, the retina becomes opaque and is rendered visible while the choriod underneath is not seen. Pathological processes or pigmentary deposits of the retina and choriod can be differentiated.

The appearance of the fundus and its details varies with the source of light and the type of filter employed. The mercury vapor light produces a dull bluish-gray fundus. The more commonly used filtered carbon-arc light produces a green fundus.

With a yellow filter, as Friedenwald and others have shown, the column of blood in the vessels is seen as black against a yellow background. Finer vessels than may be seen with ordinary light are also visible. The capillaries in the macular region and fine hemorrhages otherwise invisible may be seen by this method. Changes in the choriod such as hemorrhages following trauma, exudative Drusen and sclerosis of the choroidal vessels can be detected more readily. With yellow light hemorrhages appear black and tears in the retina appear gray. Yellow light is least disturbing to the normal appearance of the fundus, while color contrast is not augmented, details can be made out to a much greater extent.

By means of red-free light the retina becomes opague so that the normal fibres appear as white lines, lesions situated in the retina can readily be differentiated from lesions in the choroid (the choroid becomes invisible). Red-free light is useful for detection of changes in the superficial layers of the retina and of early disturbances at the macula. With a red-free filter vessels and hemorrhage appear black but pigmentary changes are subdued, the arteries and veins appear well-defined against a green background, the nerve fibres of the retina are seen as white lines and their characteristic arrangement is readily followed. In early optic atrophy these may disappear and result in a mottled appearance of the fundus; become visible with ordinary light. In disseminated sclerosis patches of fibres are missing and in retrobulbar atrophy the papillo-macular

(Continued next page)

* Optometrist; Staff Refractionist,
Boston City Hospital

bundle is absent, while the remaining fibres are undisturbed. In acute inflammation the fibres appear more distinct and pronounced, and are separated or may become obscured by edema. The examination of the macula is especially instructive. It is always clearly differentiated and in the normal eye shows a reflex at the fovea, which is usually absent in early pathological changes.

SUMMARY:

1. Yellow light is of diagnostic value because the longer wave length of the light can penetrate the pigment epithelium of the retina to reveal changes in the choroid.
2. Red-free light because of its short wave length causes the superficial layers of the retina to become visible and is of value in the detection of early disturbances of the Macula.

* * * *

BIBLIOGRAPHY:

1. *Diagnostic Examination of the Eye,*
   Berens, C. and Zuckerman, J.
   J. B. Lippincott Co., Philadelphia, 1946
2. *Textbook of Ophthalmology,*
   Gifford, S. R.
   W. B. Saunders Co., Philadelphia, 1939
3. *Internal Diseases of the Eye and Ophthalmoscopy,*
   Troncoso, U.
   F. A. Davis Co., Philadelphia, 1937
4. *The Eye and its Diseases,*
   Berens, C.
   W. B. Saunders Co., Philadelphia, 1936
5. *Textbook of Ophthalmology,* Vol. 2,
   Duke-Elder, S.
   C. V. Mosby Co., St. Louis, 1937

IRITIS

by Dr. Arthur O. Bruce

Inflammation of the iris is one of the most common eye diseases met with in ophthalmic practice. Although there are a number of different types of iritis due to various causes, the symptoms are more or less alike in all of them.

It is of interest to note that a French Ophthalmologist named Grand-Clement in 1891 called attention to the importance of distinguishing from ordinary iritis those cases in which only the posterior layer of the iris is involved. To these, he applies the term *uveite irienne.* In every respect this affection is different from ordinary iritis, and the points of differentiation are given as follows:

UVEITE IRIENNE

Occurs almost exclusively in women.
Both eyes are always affected.
Disease lasts for years and shows slight periodic exacerbations, lasting five or six days.
Causes are unknown.
Only effective treatment is iridectomy.
No discoloration of anterior surface of iris.
Pain is almost absent and redness is slight.
Occurs about the time of the menopause.

IRITIS

Occurs irrespective of sex.
Often is unilateral.
Symptoms are violent, and the disease is cured in six or eight weeks.
Causes are trauma and a number of constitutional diseases.
Proper treatment is medical (mydriatics).
Anterior surface of iris is discolored.
Pain is severe and redness is marked.

Several cases of the disease have been reported and Grand-Clement believes that this disease is a true clinical entity.

Hard Hearted...

He needs CVs!

Harold's real trouble is his inability to see quickly and easily at all distances—he doesn't have "continuous vision." If your bifocal patients complain of such difficulty, describe the benefits of CVs. Then prescribe them! You'll restore natural, youthful vision for all presbyopes with 1.25 reading adds or over. We're ready to service your CV prescriptions with experience that insures satisfaction.

WILSON & HALFORD OPTICAL CO.
387 WASHINGTON ST. BOSTON, MASS.

Ocular Symptomatology

Ralph H. Green, O.D., D.O.S., F.A.A.O.
Dean of the Massachusetts College of Optometry

PART V

Enopthalmos:

Sunken eyeball, a retraction of the eyeball into the orbit.

Physiological Enophthalmos:

The eyeball recedes slightly normally when the eyelids are closed tightly voluntarily.

Micropthalmos:

If the eyeball is abnormally small, with no signs of disease or history of violent injury, and the condition is congenital, the eyeball will appear to be enophthalmic.

Atrophy of the Eyeball:

Enophthalmos results from diminution in size and alteration in the shape of the eyeball. This usually follows a general pathology of the entire eyeball. A history of a severe inflammation of the eyeball is important in making the diagnosis.

Migraine:

A slight enophthalmos of one eyeball is sometimes seen during an attack of ophthalmic migraine. This is caused by a spasm of the four recti that causes the eyeball to be retracted into the orbit.

Atrophy of Orbital Fat:

Bilateral enophthalmos appears in atrophy of the orbital fat as a result of old age. This may be considered physiological (senile). It is normal for the eyeballs to appear somewhat enophthalmic in old age due to the physiological loss of orbital fat. Diseases of the orbit fat will produce the same.

Cervical Sympathetic Paralysis:

Hormer's Syndrome —

Eyeball is retracted into the orbit dimuntion in the size of the palpebral fissure absence of sweating and blushing on the paralyzed side pupil is myotic and will contract to light and to accommodation and convergence but will not dilate in dim light or to mydriatics (drugs that produce a dilation of the pupil).

Duanes Syndrome:

A congenital deficiency or complete absence of outward movement of the eyeball in rotation testing, due to complete or partial absence of the external rectus. The external rectus is replaced by strands of elastic or inelastic connective tissue.

Syndrome:

Usually complete, occasionally partial absence of outward movement of the affected eye in the rotation test.

Retraction of the eyeball into the orbit when the eye is adducted in the P. P. of convergence test.

Partial closure of the eyelids of the affected eye when adducted in the P P. convergence test.

Receded P. P. of convergence. The affected eye may remain fixed in the primary position while the sound eye rotates inward.

A sharp oblique movement of the affected eye up and in or down and in when the affected eye is adducted in the P. P. of convergence test.

General Notes:

Affection is congenital therefore a history of head turning since early infancy is elicited.

Females more often affected than males.

The condition may be monolateral or bilateral.

Traumatic Enophthalmos:

The eyeball may sink into the orbit following a violent blow in the neighborhood of the orbit. The enophthalmos may follow the blow immediately or more often appears several days or weeks and even months after trauma. The cause is said to be due to paralysis of the Muller's muscle in the orbit from lesion of the spinal sympathetic.

Enophthalmos may result also from fracture and depression of the bones of the orbit, injury to Tenon's capsule and cheek ligaments, to atrophy of the retro-bulbar cellular tisue (orbital fat) caused by trophic nerve disturbance.

Less Common Causes of Enophthalmos:

Severe diarrhea as a result of absorption of orbit fat.

Wasting and exhausting disease (cancer for example).

Severe hemorrhage (internal or external and not ocular).

States of collapse.

Contact Lenses

By L. Lester Beacher, O.D., F.A.A.O.
Reprinted from *The Science Counselor*, March 1951

It has been learned that many eye defects can be corrected by the use of contact lenses, fitted directly over the eyeball. As a substitute for eye glasses they are worn as a safety measure by athletes and sportsmen. Stage folk, motion picture actors, and others who appear before the public are using them increasingly.

Here is a discussion of this important advance in optometry. The experienced writer stresses the fact that there is no discomfort or pain involved in their prescription, fitting or use.

The first concept of contact lenses dates back to 1827, nearly a century and a quarter ago. Their development from the experimental stage of 1827 to their practical application for general public use in 1951 occurred in several distinct stages. At the beginning, only one specific person was involved; today, thousands of people wear them.

What are contact lenses? They are eyeglasses designed to correct refractive errors, that are worn under the eyelids directly over the eyeballs. The original contact lenses were made of glass. During the last decade, plastic (methylmethacrylate) has replaced the glass.

Herschel, a British astronomer, is credited with conceiving the idea. As a research scientist, he suggested this therapeutic measure to his ophthalmologist for the treatment of a patient who had a lacerated cornea. He believed that if a thin glass were placed under the lids, over the eyes, and conforming to the shape of the eye, the problem would be solved. Thus contact lenses were born.

In 1888, Fick studied the possibilities of these devices. Later, the German scientist Mueller made extensive investigations and developed techniques for fitting the glass lenses to the eyes. The Zeiss laboratories began to manufacture contact

(*Please turn to page fourteen*)

Widest range of segment types
and shapes available in
B&L Orthogon BIFOCALS
You provide your patients with the utmost in comfort and clarity of vision when you prescribe bifocals in the Orthogon series . the one lens system specifically designed to correct for marginal astigmatism.
B&L
BAUSCH & LOMB
NORTHEASTERN DIVISION

Visual Progress

by Ira Schwartz

From the Naval Research Laboratory, Madrid, Spain, Jose M. Otero reports on the "Influence of the State of Accommodation on the Visual Performance of the Human Eye." This paper is concerned mainly with the contribution of accommodation to some visual tasks, particularly in the range of low luminous levels.

By means of comparing the size of the Purkinje images produced by high intensity and microsecond duration flash, it is shown that the eye during night vision takes on the condition of night presbyopia. This is to say that as the test luminance diminishes the power for accommodation decreases too. This then becomes the crux of the night myopia problem and not the spherical aberration as claimed by most observers.

By further analysis of the data the author claims that the state of rest of the accommodative function is not at infinity but at .8 meters. Thus accommodation is both negative and positive and is a little more logical.

For Optometry, these findings have some implications. TV and movie viewing (being of reduced illumination) may very well require the wearing of minus correction for maximum viewing comfort, especially for slightly uncorrected myopes.

* * * *

R. T. Brooke reports from the Psychological Laboratory, Columbia University, on "The Variation of Critical Fusion Frequency with Brightness at Various Retinal Locations."

Critical frequency curves for brightness between −3 and +3 log millilamberts were determined for a 2° test field of green light at the fovea and at 10°, 20°, 30° and 40° in the periphery. The procedure used allowed an image of a 2 mm circular aperture to be focused in the plane of the pupil. Tests showed that astigmatism did not influence the data obtained for peripheral stimuli.

The curves for peripheral observations rise to a plateau at low brightnesses, dip at medium to low brightnesses, and rise again to a maximum, thus giving the conventional cone curve at high brightnesses.

(Please turn to page eight)

Want to Practice Optometry?

by Bernard Berstein

Of special interest to the seniors is the following State Board Examination's Schedule:

Colorado, Denver, State Capitol Bldg., April 8-10, 1952.

N. Carolina, Charlotte, April 21-22, 1952.

Illinois, Chicago, Chicago College of Optometry, April 21-25, 1952.

Wisconsin, Madison, Loraine Hotel, May (first week), 1952.

Massachusetts, Boston, State House, June 23-25, 1952.

New Jersey, Trenton, Hotel Stacy Trent, June 23-25, 1952.

Connecticut, Hartford, State Capitol, June 26-26, 1952.

Maine, Augusta, State House, Senate Chamber, June 20-July 2, 1952.

Kansas, Topeka, Jawhalk Hotel, July 13-17, 1952.

The above is the latest available information pertaining to time and place for Board Examinations in the various States. The listing of the States are in the order of consecutive calendar dates. Each subsequent Scope issue will carry further Board Schedules pending forthcoming announcements from the remaining States.

* * * *

The following is an article reprinted in part from the March 12, 1952 issue of the *Providence Evening Bulletin*, Providence, R. I.:

"The Rhode Island Optometric Association renewed its fight today to get department and chain stores out of the business of fitting eyeglasses to their customers.

The association prepared a bill for introduction in the General Assembly declaring optometry a profession and making it illegal for department stores to hire optometrists.

Dr. Richard I. Albert, association president, said the association believes that the practice of optometry in department stores is harmful to the public because of the emphasis on commercialism. He said 36 states ban the practice, either by law or by court decision.

The bill requires candidates for certification

(Please turn to page eight)

Data on color thresholds indicate that rods probably make their contributions to the initial part of the cone branch.

The Purkinje shift is greatly emphasized when orange and green peripheral fields are used.

The data is interpreted to mean that rods function and interact with cones at levels of brightness that are often considered to be photopic.

* * * *

In a recent paper, E. H. Land once more has pointed out the solution to the problem of the blinding headlights of autos at night. The universal adoption of the polarized system seems to be necessary now more than ever with the ever increasing number of cars on the road.

The polarizer type K has undergone rigid testing and is quite suitable when combined with a special 125 watt bulb developed by G. E. When in actual use, the set-up would be 50 percent brighter than today's high beam open road driving. Furthermore, that visibility is at least as good and this good visibility is maintained when a similarly equipped car is being met and passed.

* * * *

We are pleased to note that Connecticut is henceforth requiring new drivers to pass the orthorator type visual screening devices. This is the first of two steps that all states sooner or later must take to eliminate the unfit driver. The second step would require the re-examination of all drivers at periodic intervals. This is indeed low cost insurance against unnecessary loss of life.

---

to be graduates of an accredited school of optometry. It creates a new board of optometry consisting of three optometrists with at least five years practice."

The requirements for practicing in Rhode Island were discussed in some detail in a previous issue of the Scope. The above article serves well to illustrate the strong move for establishment of "professionalism" in optometry in this state.

JUNIOR JIBLETS

by A.C. ANONYMOUS

TIME: Stands still.

ACTORS: For the most part.

SCENE: M.C.O. Junior classroom. A1, B2, C3, D4 and E5 have just been marked absent. (Translation — "slow M.T.A.").

Instructor — "First problem — Meltzer!"

Meltzer — (Drops notebook. Bends to pick it up, and pencils roll out of pocket. Finally straightens up, but left side of body is completely paralyzed. Pupils dilate, a diaphragm jumps with tetanic cramp. Finally gasps—) "Huh?"

Nissensohn — "I got a different answer."

Jorczyk — "I agree with Meltzer."

Glasser — "Doctor, I don't quite know what's going on."

Instructor — "I suppose some of you have your own little ideas — Finger!"

Finger — (Grabs pencil which has jumped off left ear—) "I deserved the 5 points."

Chorus — (In A flat).

Bagdigian — "5 points equal one millimeter."

Schwartz — "Down at the *base* we use light years."

Chase — "That's it — more base up!"

Deckelbaum — "Atta boy, Halsey!"

Meltzer — "What was the question?"

Nedieros — "I thought you wanted meters."

Sprecher — (dully) — "Yeh! — Pay what's on da' meter."

Shuldiner — " I hope he doesn't call on me."

Instructor — "Shuldiner!"

Shuldiner — (Smiles weakly and faints.)

Jorczyk — "I think someone should tell Meltzer the question."

Casey — "It's a rout."

P. Crowley — "How the hell do you convert routs to meters?"

Anderson — (Whips out his Huntington tables.)

Instructor — "What's your little story, Bern?"

Bern — (Swallows attendance sheet—) "I assumed an answer."

Glasser — "I'm a little confused."

Chase — "Who have we got *next* period?"

Deckelbaum — "Atta boy, Halsey!"

Cotter — (Opening his left eye—) "Who have we got *this* period?"

Instructor — "Cotter!"

(*Please turn to page nine*)

THE SCOPE

Official undergraduate publication of the
MASS. COLLEGE OF OPTOMETRY
178 Newbury Street
Boston, Mass.

Editor-in-Chief ..... ABRAHAM SHAPIRO
Associate Editor ..... LEWIS RABINOWITZ
Art Editor ..... EMANUEL GLASSER
Photography ..... WILLIAM MYERS, Mgr.
GEORGE MILKIE
Business Staff ..... THEODORE GOOLST, Mgr.
HARVEY TUCKMAN
Advertising Staff ..... JERRY WASSERMAN, Mgr.
ARTHUR GIROUX
ROBERT PACKER
Circulation Staff ..... DAVE SPRECHER, Mgr.
VITO GESUALDI
PAUL SUSSMAN

Staff Writers:

STANLEY LEVINE
PHILIP BERN
DICK TAGELLI
IRA SCHWARTZ
BERNARD BERSTEIN
GILBERT FRIEDMAN
RICHARD KNECHT
SIDNEY GREEN
JOE SICA
MARTIN FRIEDMAN
HENRY LEVIN
ELVIRO MASTROBUONO

Contributing Editors ..... HYMAN KAMENS, O.D.
ARTHUR D. MARCH, O.D.
WILLIAM SMITH, O.D.

Faculty Advisor ..... DEAN RALPH H. GREEN

From the Editor - - -

I have noticed that a serious and unfortunate condition exists among a portion of the optometric students in our college and other institutions — that of a "negative response." The student, as is natural, has a tendency to compare optometrists with oculists and ophthalmologists. He notes that they have a post-high school education of seven to twelve years, while he, on the average, will have had only six years when he is prepared to enter his practice. He wonders if he will be "as competent" as they. There is no basis upon which the student can even make that comparison. Would you compare dentistry with medicine on that basis? The oculist and ophthalmologist are medical men; we are optometrists.

The profession of optometry is *unique* — not that it is the only group capable of refracting the patient, but because it is the only profession *specifically trained* for that function. Assuming that the optometric student is a better than par student, which he must be, and knowing that the accredited optometric colleges are fine ones, it follows, naturally, that the student is a well-trained refractionist. Whether he will be a good diagnostician is dependent upon the individual alone — as is true of any student of the "healing arts."

Let us change our attitude to that of a "positive response" and leave the doubts to other men.

GIBLETS—*continued*

Cotter — "Hi Doc!" (Goes back to sleep)
Slotnick — (Starts to raise arm, but Sprecher delivers death blow. Turns around like a Risley victim—) "You're losing the old zip, Dave."
Ganz — (Uses tool kit to snap Humerus into place)
Kurlan — "Dave's three up."
Sinclair — "They'll both handle glass."
Pauley — "I'm also thirsty."
Meltzer — "It should be here, someplace."
Instructor — "Got anything to add?" (Points to Puchalsky)
Puchalsky — (Gurgles, clutches throat, spins around in chair, and slumps down beside Shuldiner, smiling peacefully)
Instructor — "Pelloquin!"
Pelloquin — (Removes head from briefcase long enough to shrug shoulders)
Instructor — "C. Crowley!"
C. Crowley — (Shrugs shoulders without removing head from briefcase)
Instructor — "Daigle!"
Daigle — (Tries to jump into briefcase with Crowley, but is fought off. Grasps Sullivan's arm, and they both disappear under D4)
Instructor — "Tedesco!"
Tedesco — "Who's smoking?"
Instructor — (Accommodates for 5th row, which collapses in unison)

(As scene closes, the bell rings. Instructor surveys wreckage, and walks from room placing lead cap over finger.)

Some Distortions Of Space

*Leo F. Madigan**

Reprinted from the New England Optometric Journal
Vol. 24, No. 9, May, 1949

It is becoming increasingly evident that it is not only WHAT we see that is important, but also WHERE we see it. And where we see it is in the visual space about which much is being said and written at the present. It involves a wider interpretation of that faculty called "stereopsis" or "depth perception."

The first step in testing this faculty is to find out if a patient has monocular or binocular vision.

MONOCULAR SPACE PERCEPTION

If he has monocular vision, he is said to have developed through education and experience, certain clues by means of which he judges depth. Some clues are:

1. Color of objects: The closer the object the brighter the color. Trees which are green near by become more blue as they recede.
2. Sharpness of outline: Outlines become hazed as objects recede.
3. Apparent size of known objects: An observer learns by experience the average size of a man and how far away he is by the size of the retinal image.
4. Overlay: The obstruction of objects in a more distant plane by ones in a plane nearer the observer.
5. Perspective: The distance of a point at which parallel lines seem to converge.
6. Shadows: These bring out an object in relief and aid judgment of depth.
7. Parallax: Rate of movement of objects in relationship to one another.
8. There has been some mention of the clues that might be derived from the amount of accommodation and convergence brought into play in viewing of a distant object, but the importance of these is not considered too great in man.

These are the monocular depth clues and are psychological in character.

BINOCULAR SPACE PERCEPTION

If the patient has binocular vision and stereopsis, two images instead of one are offered the brain, and the difference between these two images due to the separation of the two eyes, gives rise to the sense of a third dimension. These are binocular depth clues and are physiological in character.

Actually, in patients with binocular vision, depth perception is the result of a combination of both monocular and binocular clues. If these two sets of clues are in agreement, there will be no trouble. However, if there is conflict between monocular and binocular clues, certain difficulties may arise.

In administering tests to establish the presence of depth perception, use is made for the most part of a stereoscope and certain cards. At first, the gross presence of the faculty was ascertained. Later, stereoscopic cards had graded figures, so that it was possible to measure stereo-acuity. From the nature of the test, many clinicians began to regard stereopsis as a central vision function instead of recognizing it as extending over the whole visual field — the image of which falls on each retina.

Due to the character of these two images, the patient may see the visual space in its normal appearance, or there may be conflicting clues with a potential distortion of space values and the possibility of visual symptoms.

TESTING FOR SPATIAL DISTORTION

How then, does one test for spatial distortions? One way to understand the process is to compare it to a test for phoria.

In making a phoria test, it is necessary to suspend binocular vision, in order that the eyes may act monocularly. Each eye sees an image of the common object and the direction and amount of displacement gives the degree and kind of phoria.

To test for certain forms of spatial distortion, it is necessary to abolish as much as possible the monocular depth clues and to depend on the binocular depth clues. A change in appearance of the test objects, and the amount of the change denotes a potential space distortion.

This is demonstrated in the following manner. The patient is looking into a seven-foot-square room, in a position that would be occupied by

(*Please turn to page nineteen*)

* Optometrist. Dr. Madigan was formerly associated with the Dartmouth Eye Institute in the study of aniseikonia.

FRESHMAN REVIEW *by Henry Levin and Al Mastrobouno*

Within the paragraphs of this article, we have recorded facts about the doings of the freshman class and the members who make it up. These articles are intended for the entertainment of you—our classmates. Our plan has been to try to pleasantly remind you for years to come of what you once were, how you thought, what quaint enterprises you sometimes engaged in, etc. We have tried to be impartial, and, if in an effort to amuse you we have trod on your egos, be forgiving.

* * * *

There was a good turnout not long ago at the unique Parole Party, an open affair held at the school. The party was put on by the pledgees of P.O.S. Members of both fraternities were present and all had a good time. The function was highlighted by the selection of a "Mr. and Mrs. Dillinger," which fitted in perfectly with the underworld atmosphere of the party. Who knows what the theme of the party will be next year?

The freshmen members of the basketball team at M.C.O. sparkled during the big game at Boston Garden. Through the efforts of Paul Taylor, Alan Greaves and Hank Levin plus the players of the upper classes, M.C.O. downed a good Curry College team, 66 to 61. The above mentioned players were also instrumental in leading M.C.O. to a victory over Emerson College in the last game of the season. As this article is being written, plans for the coming softball season are being formulated.

Speaking of inebriating beverages, Budweiser is well represented in our class by some fair-headed boy — no squealing. We hear that "Muscles" (they ripple—especially the one between his ears) is bringing his Mary Jane (not a candy bar) to the Parole Party handcuffed and all — hang on boy!

Doctors P.B.T., Jr. and Elviro have been chosen by the "Mortician" of Rigor, Inc., to judge the M.C.O. (Mustache, Cuticle, and Orthodontia) contest . . .

The Freshman Student Review is being carefully drawn and displayed on the bulletin board. Hey Tom, when does my picture appear?

The Pearl continues to be one's guiding light — keep shining, Leon!

It must be a great distinction to sit in the Honor Seat in a certain class, isn't that right, Mr. Marzilli? Has Private Eye Miller caught that Boston Bandit, W.F., yet? Last week Little Caesar stopped dissecting his cat long enough to investigate strange grunts and growls coming from the Biology Supply Room. Upon questioning, Caesar admitted that he had secretly been trying to make the initial incision on the 450-lb. Giant Brown Bear for the past few weeks. We are glad to see that Bob Graham came back from that weekend ski trip in one piece.

(*Please turn to page twenty*)

Idle Chatter —

As Abe walked into our non-existent office, he found us reading eviction notices and old unpaid bills. "Well, men, it's time to get your Kolyum out."

After the remark, the room was silent, and finally a rasping "raspberry" broke the spell. "Well, we're about to have a big weekend," I said, "and these words sent us upon a meditation (Phil. 2093) on weekends. We finally decided that a weekend ends the week, comes before another week, and comes between Friday and Monday. Gad, we're brilliant!

The Three Big Tea Men went to an outing at Mass. General. After this affair was over, two of them were out. Shame Lover and Mugger! Looking about, we found Finger continually dipping with his partner. Ah-h, sweet Mystery of Life(?)

—AND NOW, MR CHASE, DO YOU SEE ONE OR TWO CIRCLES?

SENIOR COLUMN

Guest Writer — Frances Godfrey

If a host is a man who entertains and a hostess is a woman in the same position, we have decided that in this year's graduating class there will be three optometristesses (or is it optomctristessi or optometristessmata?) Anyhow, whatever you call us, we're here.

Now, for a brief description. You'll find us, on any class day, when we don't have clinic, surveys, Medical Missions, Boston Dispensary or too much snow in the third row on the right hand side. The first one of us can be located by tracing down a continual buzz to its origin, and there you will find Dotty. Dotty should be good at carrying on conversations with patients—at least she's been practicing long enough. Of course, it goes without saying that on the left of Dotty is Wally, who does all right at talking, himself. Sometimes, we find the notes we took were on their conversations when they drowned out the lecturer.

Next we find Cam, our "5′ 2″" partner, who excels in the use of the Feldman Adaptometer in the dark closet, and who says she can give orthoptics to make the eyes hear and the feet smell. Cam also tells us she is crazy about bears, large or small.

And last we find Fran, who thinks she has a much sought after seat because she has a different man beside her every day. (Men beware—this is leap year). Fran also has a "Lending Library" of notes, which she loans to anyone who asks, but can never remember to whom she has loaned them. (You fellows better hurry up and return them—there's a 10c a day charge).

Our activities around school are many and varied. They consist of such things as talking, complaining, sitting in our lounge, drinking coffee, giggling in class, and occasionally something useful like vacuuming the rug in the clinic, and

(*Please turn to page twenty*)

Happy the Patient

. . . whose eye care has included careful regard to style as well as Visual Correction. This lady is able to change her glasses as she changes her clothes to match the occasion because of her Optical Wardrobe.

SHURON OPTICAL COMPANY, INC.

Established in 1864

STREAK RETINOSCOPY

by Seymour Fenster, '52

Streak retinoscopy is a technique that appears to be coming into its own. Many men have praised it; others have refused it. Before any practitioner or student decides for or against the method, a fair trial should be conducted. Since many schools, the Massachusetts College of Optometry being one, do not offer a formal course of Streak retinoscopy, I have outlined a fairly simple procedure involving the use of plus or minus spheres and MINUS cylinders.

Before anyone previously trained in the "spot" method attempts the "streak" method, he should be aware of certain basic differences in the two methods. First, the filaments in the bulbs are not the same, the spot bulb contains a coil filament which produces the spot of light, whereas the streak bulb contains a bar filament from which the band of light is produced.* Secondly, while using the spot, a band of light is an indication of an astigmatic condition, while with the streak, a band of light does NOT indicate astigmatism. Third, and finally, in spot retinoscopy the observer watches the shadow, however, in streak retinoscopy, the band of light in the eye is observed.

Two final comments before the procedure itself are (1) the condensing lens should be in a position to produce a convex mirror effect (diverging light) and (2) always scope in a direction perpendicular to the direction of the band, e.g., if we want to scope the 90th meridian, we place the band so that its long axis lies in the 180th meridian.

The procedure is as follows: The examiner assumes his working distance, scopes the naked eyes, and notices the reflex. What we are now going to do is create a condition which induces the relaxation of his accommodation, and yet keeps a "with" motion in all meridians. If the reflex is neutral, or a fast, bright "with", we leave the eye alone. If a slow, dull "with" is seen, we introduce plus spheres until neutrality or the fast bright "with" appears. If the initial reflex is "against", introduce enough minus spheres to produce our desired fast, bright "with", or "neutral" reflex. Now concentrate on the eye to be scoped first. If neutrality is seen in all directions, we have our desired reading. If "with" motion is present, add sufficient plus spheres until neutrality. In a spherical eye, all meridians will be neutral; but in an astigmatic system, when neutrality is found in one meridian the meridian of greatest power, a "with" motion will be seen in the meridian perpendicular to it. Remember, as the plus spheres are added to find the first neutral point, the band of light must be rotated through the 180 meridians and these meridians scoped with each increase of plus lenses. When neutrality is found in the meridian of greatest power, make a mental note of the power of the lens. To scope the other principal meridian which still has "with" motion, rotate the band 90 degrees, and scope STILL ADDING PLUS SPHERES OR REDUCING THE MINUS. The sphere that neutralizes the latter meridian is going to be the sphere used, and the MINUS cylinder is determined by finding the difference between the two spheres needed to neutralize the two principal meridians and placing its axis parallel to the last meridian neutralized (the band of light lies perpendicular to the desired axis when the final meridian is neutralized). An example would be: a -3.00° sphere neutralizes the 180 meridian and a -2.50° sphere neutralizes the 90 meridian. The required spherocylinder is $-2.50 = -.50 \times 90$. A convenient check test for the power of the cylinder can be performed if we are working with a phoropter containing minus cylinders; as we add minus cylinders up to the already calculated value, we can observe the reflex to make certain that neutrality was obtained. The same procedure is followed for the other eye.

Caution must be exercised that we do not stop adding plus or reducing minus before true neutrality or the mid-point of the neutral zone is reached, or the findings may have too much minus or too little plus.

The main advantages of Streak retinoscopy have been described as: (a) it is much easier for most examiners to follow a band of light rather than a shadow, and (b) the finding of the cylindrical axis is facilitated and made more accurate. After the first meridian is neutralized, we line up the band of the scope with the band in the eye both of which, if we are on the correct axis, move in the same direction. The axis may

(*Please turn to page twenty*)

O. E. P.

by George Milkie

As we peer through our fogging lenses over the past few months, we find that the social calendar of the fraternity has really been jumping. The Beer and Card Party on February 19th was really a whim-bang. As it turned out — a Beer and Ping-Pong Party, but all went home sober. So everyone says! !

On March 4th, and faithful to tradition, "Bird" McElroy, "Peg Joules" LaChance, and "Torpedo Joe" Sica stayed until breakfast and had a rousing time after the big party at the Club 173.

These are only a few of the get-togethers — not to mention the Initiation and Valentine Parties. And from what the "boys" on the committee tell me, we can expect more in the near future; a hayride, our annual Omega Spree, Farewell Dance and the Banquet.

After enduring the horrified suspense of a pledge period and initiation, our neophytes have succeeded in gaining new brothers all over the world through the Zeta Chapter of O. E. P. The initiation and party, following, were loads of fun for pledges and brothers alike. Oh yes— how is Mary, boys? ? EXTRA! ! FLASH! ! Beck won four cents the first in! But kidding aside, we would like to extend our congratulations and welcome to brothers:

Irving Kaplan
Chester Kmiec
Joseph Eiduks
Thomas Ferrara
Corrado Conti
Don LaChance
Alvin Bagdoian
Nathan Miller
Elmer Pelletier
Thomas Couch
Francis DeCesare
Lawrence Dunn
Lee Eastman
Arthur Giroux
John Gould
William Hissey
Paul Taylor

On March 19th, Dr. R. Albert, President of the Rhode Island Optometric Association, was invited by the brothers of Zeta to give a lecture on "Things We All Want To Know About Optometry." This was an open lecture and the entire student body was invited. Dr. Albert discussed, from a practical viewpoint, the things of interest to optometric students. A question period followed.

CONTACT LENSES—*continued*

lenses on a commercial basis, and in 1920 were ready for public service. In 1929, Heine affiliated with Zeiss laboratories for contact lens research. Since then, we in the United States have taken up the work and have developed contact lenses far beyond our expectations. During this time, Dallos, a Hungarian ophthalmologist, developed a procedure for taking molds of the eyes which is the basis of our present simplified system of fitting. Feinbloom, Obrig, Neill, and the writer, have been cited for the many improvements made in this country during the past two decades. Bear, in England, recently has contributed to the advance. Butterfield, Green and Tuohy on the West Coast have experimented with corneal contact lenses. Each has added various technical improvements with the result that, today, the use of these lenses is safe. In some kinds of work they have become a necessity.

The average person is under the impression that the entire eyeball is sensitive. This is not true. The fore part of the eyeball (cornea), which is directly in front of the colored part of the eye, is very sensitive; but the white section (sclera) is not sensitive. The white is similar in response to the skin of the hand. Contact lenses are constructed so that they fit snugly over the white section of the eye but do not touch the sensitive cornea. That explains why there is no pain associated with the prescribing, fitting, or wearing of such lenses. Since the lenses fit over the eyeballs, they move with the eyes in every direction.

The time contact lenses can be worn varies with individuals. Some persons can use them as long as 14 to 16 hours a day, while others cannot stand more than two hours. These lenses should be considered supplementary to one's regular spectacles. A person should wear his regular glasses for general purposes, and contact lenses only for the particular situation for which they were originally desired, and for which they were prescribed. Some of their special uses will be mentioned later in this article.

Any air space between the corneal section of the lens and the cornea cannot be tolerated. Air pressure, lack of lubrication, and the absence of certain physiologic reactions make is necessary to replace the air with a buffered solution. The

(Please turn to page seventeen)

SILHOUETTES

by Stanley Levine

Dr. Otto Hochstadt

The progress of the Massachusetts College of Optometry, one of the leading colleges in the country, cannot be mentioned without including the name of Dr. Otto Hochstadt, an energetic physician, who, perhaps, is most responsible for this marked progress. He has helped give to us the dignity and prestige that belongs to a professional college of our high standing. Through his efforts, we have shut the door on "Cooper's Campus", and have relocated in the Horace Mann building, named in honor of one of the foremost educators of our time — a good omen in itself.

Previous to joining the faculty in 1944, Dr. Hochstadt taught physiology at the Medical School of the University of Vienna, his alma mater. Since his arrival, here, he has become our good will ambassador, and has been able to interject new interpretations concerning optometry into the various medical circles in Boston. A member of select medical and social organizations, such as the A. M. A. and the New England Heart Association, Dr. Hochstadt is listed in the "Boston Blue Book", and also in "Who Is Important In Medicine".

A man of unlimited energy, Dr. Hochstadt has prepared numerous publications on various fields of medicine such as Physiology and Cardiology, Vitamin A, and the Anti Thyroidal Substance, which was one of his last publications published from the Boston City Hospital. As a trustee of our college and chairman of the Finance Committee, it is not too difficult to realize that the purchase of the Horace Mann building, new facilities, and several new units for the clinic, are all a result of Dr. Hochstadt's deft handling of the college purse strings. He has been instrumental in procuring the changed status of the college in many respects. First, the incorporation of the college as a non-profit institution; second, the granting by the Commonwealth of Massachusets the right to be called a college of optometry instead of a school of optometry; and thirdly, the authority to grant three degrees; the Bachelor of Science, the O. D., and the D. O. S. making this one of the few optometry colleges in the country to grant three degrees.

But Dr. Hochstadt is by no means a person who is so easily satisfied. He is the founder and trustee of the Massachusetts Physician's Club, and more locally, the advisor to Omega Epsilon Phi, a national optometric fraternity. He holds many other offices at the college, and he enjoys having a personal contact with the students.

Dr. Hochstadt now is primarily interested in organizing a strong, united alumni association, in order to promote the field of optometry, and to give added impetus to the ever growing college. He believes that a well unified alumni association will be able to command more respect and attention from other medical men. He realizes that a group will stand out in their achievements more so than will the individual, and that they need a strong educational institution as does the institution need the strong alumni group — for it is only thru a group of this type, that a school can receive the support for its growth.

Although a very busy man with many diversified interests, he is never too busy to share his time with students seeking his advice and consultation. As the general supervisor of most of the activities and all the expenditures of the college, and if his past efforts are any indication of the future, I believe that I am correct in saying that the Massachusetts College of Optometry will attain new heights in optometric leadership.

THE RELATIONSHIP OF REFRACTIVE ERROR TO THE SPEED OF PERCEPTION OF OBJECTS AND WORDS

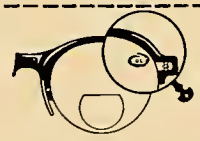
*by Thomas H. Eames**
Reprinted from the New England Optometric Journal
Vol. 24, No. 6, Feb., 1949

Perception of objects is not the same as perception of words. Objects are perceived as form, color, and, except among infants, name, together with associations formed through previous experience with the object or similar objects. Perception of words involves the same factors, but in addition the use of symbols (letters and words) which stand for abstract thoughts including such things as qualities, quantities, movement, conditions, etc., as well as objects. One would think that since both involve seeing the effect of refractive error might be about equal on each type of perception and that such errors or other eye defects or dysfunctions might affect both. The possibility was studied in a group of 100 children ranging in age from five through seventeen with a median age of ten years five months.

Refractive error correlated with the speed of object perception (as measured with the author's tachistoscope [1] [2]) at plus .54 and with the speed of word perception at plus .16. Obviously there was a moderately important relationship in the first case and practically none in the second. Myopia and some astigmatic errors in children reduce visual acuity, while most but not all hypermetropic errors in persons of school age do not. The majority of cases in this study were hypermetropic. Such children can clear their vision by excessive accommodation which places more or less strain on their nervous systems. This is roughly proportional to (a) the degree of defect; (b) the individual's general level of nervous response. One would expect from these facts that there would be a not very different correlation between refractive error and the speed of object and word perception in such a group as this. However, there is a difference and it is paralleled by the clinical observation that such

(Please turn to page eighteen)

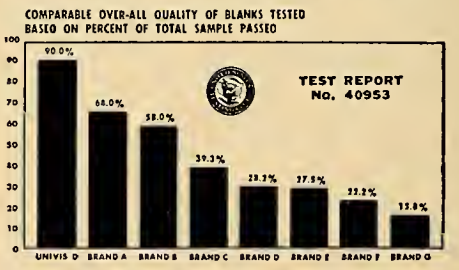
Univis D now proved superior in every important quality classification by laboratories of the United States Testing Company, Inc.



Never has a mark so tiny meant so much to so many.

And now you can identify your Univis R_x by the letters "UL" at the perimeter of the finished lens, which are visible through a +8.00 D. or +10.00 D. trial lens.

PRESCRIBE THE BEST



United States Testing Company findings show substantial margin of Univis quality superiority over 7 best known competing straight-top bifocals on basis of the 4 important quality values:

1. **Surface Quality**
2. **Contact Quality**
3. **Reading Addition Accuracy**
4. **Freedom from Cylinder or Aberration in Segment.**

univis

THE UNIVIS LENS COMPANY
Dayton 1, Ohio

older type of lenses, which we were fitting as late as a few months ago, required behind them an artificial buffer solution. We had to change the type of solution for various conditions since the *p*H of the solution was definitely a controlling factor in determining how long a lens could be worn. Matching the tears was at one time practiced in order to obtain the proper *p*H and isotonicity. This did not prove to be satisfactory. We are concerned not so much with the *p*H of the solution at the time the lenses are inserted, but rather at about two hours after insertion. Due to changes in the buffer solution after several hours, its *p*H no longer remained the same as at the time of insertion. The osmotic pressure had changed, and so had the index of refraction, resulting in gradual blurring of vision. This is the chief factor that controlled the wearing time of these older lenses.

During recent years, a kind of lens was made that did not require the use of an artificial solution. This type was tried originally about 50 years ago. I used it more recently in an attempt to eliminate anesthetics while taking impressions. This lens is a tiny optical disk of the diameter of the cornea, that is fitted over the sensitive corneal section alone. Experiments with this corneal lens led to the next important development.

The newest lens is a full size lens with all the advantages of the type just described, which fits over only the front section of the eyeball, yet it requires no artificial buffer solution. Instead, the naturally flowing tears enter and circulate in the corneal section of the lens. Elimination of the buffer solution, however, creates other new interferences, but these are so much less troublesome that we regard the new fluid-less lens as a great boon.

The procedure for fitting contact lenses depends upon the doctor's technique, the eye requirement, and the patient's psychological reaction. There are two basic systems. In one, various lenses of different shapes are placed over the eyes, and the trial lens conforming most nearly to the shape of the sclera is duplicated for the patient. The second method requires greater skill on the part of the practitioner since he takes an impression directly from the eyes just as a dentist takes an impression over the gums to enable him to fit acurately a bridge or denture. In my opinion, contact lenses made from accurate impressions involve less guess work. Under an expert's technique there is no discomfort in taking the impression. Pain is definitely out of the question.

Corneal contact lenses are fitted from a trial set. The radii of curvature of the cornae are noted by instrumentation (Keratometer) and the appropriate trial lenses are calculated on that basis. The patient's wearing ability is predetermined during this period, except that the time element is not constant, nor does it remain the same over a long period of time. These lenses require no artificial solution, but most patients cannot wear them very long because the lenses rest on the cornea and create discomfort or irritation.

These corneal contact lenses taught us that the elimination of the artificial buffer solution is desirable. Further research in combining the mechanical properties of corneal lenses and those of the previously fitted full size lenses, created the now popular fluid-less contact lens. The lens is not actually fluid-less insofar as the total absence of liquid is concerned. We insert the lens over the eye, and within a few minutes the corneal section is filled with natural tears. This is much better than any artificial solution could be. Moreover, there is a continuous replacement of tears since there is some flow in and out. This lens can be used for any purpose, while corneal lenses have limitations because of their size.

Contact lenses are valuable in the treatment of eye conditions that regular spectacles cannot correct, such as keratoconus (cone-shaped, irregular cornea), corneal scars, ulcerations, high astigmatism, high errors of refraction, binocular imbalances, differences between the sizes of the two ocular images, fusion disturbances, etc. They are used for occupational purposes, by radio and stage performers who appear before an audience, by public speakers, and others. As a safety measure in other occupations they are most valuable. For sports, including swimming and all forms of ball playing, they are used extensively.

If one eye is disfigured, a contact lens can be placed over it, with an artificial iris in it made to match the appearance of the other eye. After eye surgery in cases of monocular or binocular cataract, these lenses afford greater visual com-

(*Please turn to page nineteen*)

children appear more able to recognize pictures than words in given exposures. It is quite likely that this ties in with the greater incidence of hypermetropia among groups of children with specific reading disability than among unselected or passing groups from the same or comparable school situations. It appears that there is probably a significant handicapping factor in word perception among hypermetropic children at least. This may be a fatigue entity arising from the increased strain resulting from compensatory accommodative efforts, together with difficulties stemming from efforts to interpret defective visual impulses entering area 39 (Brodmann [3]) over association fibres from areas 17, 18 and 19. The difference in nerve paths, the longer and more complex course required in word perception, the possibility of more adventitious reflexes along this path and the probably more or less imperfect impulses directed from areas 17, 18 and 19 to area 39, with corresponding difficulty in engram formation or reactivation, probably explains the different correlative values between refractive error and the speed of object perception and word perception.

A group of cases presenting refractive errors of various degrees were studied further by taking the measurement of the speed of perception of words, then placing before the patient's eyes appropriate lenses for correction of his refractive error and then repeating the measurements. The increments in speed resulting from correction were measured and the degree of refractive error was correlated with the degree of increment in the speed of perception. The increment in the speed of object perception correlated with refractive error to the extent of plus .46, while the variation in speed of word perception presented a correlation of plus .50. This shows correspondence but does *not* indicate what degree of refractive error is important as a key point beyond which increment is more or less likely to result from correction by means of lenses.

The cases were further divided into two main groups; a myopic group and a hypermetropic group. Each was subdivided into a group with refractive errors of two diopters or more and another (including the first) presenting refractive errors of one diopter or more. Study of these groups revealed the following data:

GROUP A

Presenting two diopters of refractive error or more.

O = increment in speed of object perception.
W = increment in speed of word perception.

	Myopia	Hypermetropia
O	50%	100%
W	50%	100%

GROUP B

Presenting one diopter of refractive error or more.

	Myopia	Hypermetropia
O	50%	100%
W	50%	100%

The average increment in all cases except in object preception among hypermetropic children in groups A and B was 5.0 speed intervals on the tachistoscope. The hypermetropic sub-groups presented an average increment of 3.4 speed intervals. This suggests that the critical point is below 1.00 diopter of refractive error.

To check this the cases presenting errors of .50 diopters or less were studied as above. All cases exhibiting this degree of refractive error in the present group were hypermetropic so the bilateral grouping could not be carried out. However, the results showed a marked dropping off as follows:

GROUP C

Presenting 0.50 diopter of hypermetropia or less.

O	25%	(av. increment 0.5 speed interval)
W	50%	(av. increment 1.0 speed interval)

CONCLUSION

This leads to the tentative conclusion that correction of refractive errors of 1.00 diopters or more is likely to result in improved perception speed in an important number of cases, at least in the present group. It probably represents a general tendency toward improvement in perception speed following the correction of refractive errors.

* Ophthalmologist; School of Education, Boston University.

References

1. Eames, T. H., *A Study of the Speed of Word Recognition,* Jour. Educ. Res., 31: (Nov.) 1937.
2. Eames, T. H., *The Speed of Picture Recognition and the Speed of Word Recognition in Cases of Reading Difficulty.* Am. Jour. Ophthal., 21 (Dec.) 1938.
3. Lyle, D. J., *Neuro-ophthalmology.* C. C. Thomas: Springfield, Ill., 1945.

one of the walls, the roof, and the door have leaves stapled to their surfaces. These leaves mask the contours of the surfaces, especially the angles and corners formed where the surfaces join each other, thus eliminating perspective and reducing to a minimum the monocular depth clues. In such an environment, if there is distortion of space, the inside of the room will not appear as a cube, but will show various anomalies. A typical report might be that:

1. The back wall is further away on the right side.
2. The roof slants up at the right side.
3. The right wall of the room is larger than the left, and farther away from the center of the room.

When the patient turns away from the test room and is again in his normal environment, the distortion is usually no longer evident. Most people do not notice any distortion of objects or space in normal environments. Does this mean that the effect of the distortion has been done away with? No, no more than does the removal of the test condition in the phoria test whereby fusion is re-established and a single image is seen do away with the potential trouble in cases of measured phoria. If the examiner did not learn something about the extrinsic muscle condition of the patient, and find out if a condition exists for which the patient must compensate, there would be no point in taking the phoria measurement. This, when a patient reports distortion of space objects, there is evidence of the existence of a problem which the patient has to cope with. For some patients, this gives rise to troublesome symptoms of varying degrees of severity.

Now just as there are patients who cannot handle easily their extrinsic muscle problem and have diplopia at times, so too, patients with spatial distortion will see even normal surroundings distorted. For instance, Mrs. R. sees the leaf room distorted as described above when she looks at it with no lenses before her eyes. She also reports that some rooms in her home appear that way at times. Her chief symptoms are nervousness, headache with dizziness and nausea. The floor seems unsteady under her feet, and she has a phobia against going anywhere. She has had eight corrections since 1942, all varying around her refraction of:

$$\begin{array}{l} \text{R. } +\ 0.75 = -0.75 \times 180 \\ \text{L. } +\ 0.75 \end{array}$$

Three days ago, a patient reported that a road he used to travel on daily would appear to be level in the morning, although he knew from the behavior of his motor that his car was going up grade. As he returned in the late afternoon, the road which appeared level in the morning had a decided grade which he could recognize.

Similar reports of distortion have been made by other patients. One had such a sense of insecurity that she used to sit in a dark room when she arrived home from work to get herself composed enough so that she could proceed with her evening meal.

As time goes on, it is becoming more apparent that knowledge of a patient's reaction to visual space and of his ability to make correct spatial judgments is quite important. It has been assumed quite generally that when a patient reports distortion of objects — especially where a new correction is being worn — that if the distortion subsides and does not bother the patient he has adjusted or re-interpreted his images, and the distortion effects are no longer operative. However, an investigation of the visual space in a great number of cases shows distortions even after the patient has worn his correction for twenty or thirty years and presumably has become accustomed to its effect.

As more knowledge is gained about visual space and its measurements, both in the normal aspect and in the various distortions, it is hoped that a wider application of corrective procedures may be used.

---

fort to the patient than do spectacles, even if the time factor may be limited. The psychological effect on persons who cannot see without glasses yet who do not like to wear them socially or for specific functions or purposes, is most favorable.

Contact lenses have to be prescribed and fitted. The visual and eye correction is prescribed by the optometrist or ophthalmologist. The fitting of the shape of the lens can be done by these eye practitioners or, in many states, under the supervision of these men by contact lens technicians. Recently, the Contact Lens Section

(*Please turn to page twenty*)

STREAK—*continued*

be read off the calibrated scale on the retinoscope itself, or the band can be narrowed down and read off the phoropter or frame being used.
* Which can be rotated 180 degrees.

* * * *

In the span of a year since the first publication of the article, many students have complained that the technique outlined is too radical from that taught at the school. To facilitate matters I shall outline another procedure of streak retinoscopy in which the examiner utilizes "against" motion instead of "with".

Before this is attempted, however, it should be realized that we are forfeiting two assets when "against" motion is used; (1) the simplicity with which a "with" motion can be detected, and (2) the exactness in the axis determination of the astigmatic condition afforded by lining up the streak band from the retinoscope with the band in the patient's eye, both of which are moving in the same direction.

The alternate procedure is as follows: Obtain "against" in all meridians and add minus or reduce the plus spheres until all meridians are neutral (as in a spherical eye), or until one meridian is neutralized while the other still has "against" motion (as in the astigmat). With an astigmatic eye, we then rotate the band of the retinoscope until the streak from our instrument and the band in the patient's eye, although moving in opposite directions, move parallel to each other. The axis of the minus cylinders which are then used to obtain neutrality in the meridian of greatest power, still showing "against" motion, contains the band of light, and is read off directly.

SENIOR COLUMN—*continued*

checking off sophomores and juniors on schematic eyes. We also volunteer to give ta-kiss-toscopic training.

As we prepare to walk off with our diplomas in June, we feel sad that we leave behind us no female students, but we sincerely hope that there will soon be more optometristesses in M. C. O.

NOTE:

The class wishes to extend its congratulations to Murray and Muriel Katz on the birth of their son Robert Allen. . . . Keep your eyes open for Mrs. Larry Carmen who is expecting in April.

REVIEW—*continued*

This past month has seen the freshmen wearily plowing through a maze of calculus problems and zoological taxonomy. When well it end, you ask? Only time and Lepidosirenidae will tell! It seems that the basis of all the confusion lies in the endeavors of a few conscientious souls in the class, who have been trying to determine the effects on intelligence that a stream of electricity would produce in a sexually mature Agkistrodon Piscivorus if said creature were enclosed in a regular right circular ellipsoidal cylinder of maximum volume. So far this group has made no appreciable advance towards the solution of the problem. Rather than suffer over their inadequacy, they have wailed and sobbed to the other members of the class and, as a result, the whole class has been wound up over the situation. Don't worry, Men, we'll all be out of the woods by the end of the semester, and won't we be glad when we've struggled thru the last tangle of brush to see in the clearing, greeting us with open arms, Alytes and Polyeterus. What a way to spend the summer!

CONTACT LENSES—*continued*

of the American Academy of Optometry adopted rigid rules for certifying optometrists who are Fellows of the Academy and who meet the requirements of this Section. To date only a few Fellows have been so certified.

We emphasize again that there is no discomfort or pain involved at any time during the prescribing, fitting or wearing of contact lenses. Formerly, mild topical anesthetics (2% Butyn) were used by patients until they became used to wearing the lenses. We discovered, however, that it was only fear that necessitated the anesthesia. Likewise, when Dallos began to take eye impressions, he advocated the use of local anesthetics, and for a long time for this one step one-half per cent Pontacaine was employed under medical supervision. The writer is responsible for developing the first technique of taking impressions without medication, and this modified procedure is now everywhere the accepted method. It causes the least discomfort to the patient. If the patient believes what he is told, there is no problem, for actually no pain is caused by the present method.